

REMARKS

I. Introduction

Claims 1-16 are pending in the application. In the Office Action dated Sept. 24, 2007, the Examiner rejected claims 1-12 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 6,512,985 ("Whitefield") in view of U.S. Pat. No. 6,647,309 ("Bone") and rejected claims 13-16 under 35 U.S.C. § 103(a) as being unpatentable over Whitefield in view of U.S. Pat. No. 6,606,574 ("Takanabe") in view of Bone. In this Amendment, Applicant has amended claims 1 and 10-12. Applicant respectfully request reconsideration of the claims.

II. Rejection of Independent Claims 13-16

Claims 13-16 were each rejected as being unpatentable over Whitefield in view of Takanabe and Bone. Amended claims 13-16 each recite "preventing values associated with the at least one marked physical object from affecting an average product quality of the plurality of physical objects". In the Office Action, it is admitted that Whitefield fails to disclose this feature, and there is no indication that Bone teaches this feature. With respect to this limitation, the Office Action states:

Takanabe teaches, with respect to claims 13-16, performing quality control analysis early in production to take measures to assure that the average quality of a product does not fall below a limit (column 8, lines 9-20). It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Whitefield et al. with the teachings of Takanabe to remove products that would affect the average product quality. The motivation for making this combination would be to have a higher output by not declaring entire lots defective, but by removing defective wafers earlier (Takanabe, column 8, lines 1-20).

Applicant disagrees with this characterization of the teachings of Takanabe. Takanabe shows a system that detects trends in quality control characteristics of a manufacturing process in order to prevent problems with quality at an early stage in the manufacturing (col. 8, lines 9-20). Applicant was unable to find any teaching in Takanabe, in the cited section or elsewhere, that teaches the feature of the claimed limitation of preventing values associated with one of the objects (i.e., a marked object) from affecting an average product quality of the plurality of physical objects, nor would such a limitation

be rendered obvious by a system for detecting trends in quality control characteristics, such as is shown in Takanabe. While early detection of quality trends may permit the manufacturing apparatus or lot to be stopped before further lots have been manufactured (Takanabe, col. 8, lines 5-7), there is no teaching in Takanabe about what happens to values (presumably already measured) associated with wafers or other physical objects that have caused the detection of such trends. The only statement that Applicant could find in Takanabe on this point is at col. 5, line 58 – col. 6, line 4. This section reads:

Quality control data 12 obtained by inspection steps and the actual result data 11 including data about lot numbers, process step names, product types, and date of completion are collected by the quality control data registration-and-processing means 1 and stored in memory. Then, necessary statistical processing is performed to derived [sic] statistical data (SPC data). In this way, SPC data such as the average value of measured values, standard deviation, maximum value, or minimum value are derived. *The quality characteristics of the products are evaluated and managed by constantly monitoring variations of these SPC data in the same way as the prior art method. Therefore, description of these evaluating and managing steps is omitted in the description of the present embodiment.* (emphasis added)

This does not indicate that values should be prevented from affecting an average product quality. Instead, it merely indicates that this is handled in "the same way as the prior art".

Even if Takanabe taught "to remove products that would affect the average product quality" (which it does not), as suggested in the Office Action, Takanabe would still fail to teach the cited feature, at least because Takanabe does not teach preventing *the values associated with* such removed products from affecting the average product quality. Removing the objects from the manufacturing process does not indicate that measured values associated with such objects would be removed or otherwise prevented from affecting an average product quality.

Thus, even if there were motivation to combine the teachings of Whitefield, Bone, and Takanabe (which is questionable), this combination would not produce the invention as claimed in claims 13-16 of the present application. At best, such a combination would yield an automated manufacturing process control system in

accordance with the teachings of Whitefield and Bone that was able to stop a manufacturing process or lot based on early detection of a quality trend, in accordance with the teachings of Takanabe. It would not produce a system capable of "preventing values associated with the at least one marked physical object from affecting an average product quality of the plurality of physical objects", as is claimed in claims 13-16 of the present application.

For at least these reasons, claims 13-16 of the present application are patentable over the cited combination of Whitefield, Bone, and Takanabe. Accordingly, Applicant respectfully requests that the rejection of claims 13-16 under 35 U.S.C. § 103(a) be withdrawn.

III. Rejection of Claims 1-12

Having argued that Takanabe fails to cure deficiencies in Whitefield and Bone with respect to claims 13-16, Applicant notes that independent claims 1 and 10-12 have been amended to include a limitation similar in nature to that previously found in claims 13-16. In particular, claims 1 and 10-12 have been amended to include a limitation of "preventing values associated with the at least one marked physical object from affecting a product quality measurement of the plurality of physical objects". While not the same as the limitation of claims 13-16, this limitation is similar in nature, and is not taught or suggested in any of Whitefield, Bone, or Takanabe. In particular, Takanabe fails to teach this limitation for at least the same reasons discussed above with respect to claims 13-16. Therefore, it is believed that independent claims 1, and 10-12 are patentable over Whitefield, Bone, and Takanabe, taken alone or in combination.

Other amendments have also been made in order to improve the clarity of claims 1 and 10-12, and to place them in better condition for allowance or appeal. In particular, the claims now recite "receiving at least one process parameter from a sensor that monitors a process parameter of a sub-production installation of the manufacturing process while the plurality of physical objects is being manufactured". Further, the "evaluation unit" has been removed, and it is now recited in claim 1 that the analysis is "automatedly" performed (this is not needed in claims 10-12, since these clearly specify that it is a machine or a program stored in a computer readable medium that performs

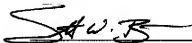
the various method steps). Additionally, the step of "removing the at least one marked physical object from the manufacturing process" has been deleted, since removal of the marked physical object is not always necessary, and the marked object may be re-introduced after the special measurement or treatments (see paragraph [0084]), as long as the values associated with it are prevented from affecting a product quality measurement. Other minor amendments have also been made to place the claims in better condition for allowance or appeal.

Since none of Whitefield, Bone, or Takanabe, taken alone or in combination teach all of the limitations of independent claims 1 and 10-12, as amended, the claims are now believed to be patentable over the cited combination of Whitefield and Bone, as well as over any combination of Whitefield, Bone, and Takanabe. Since claims 2-9 depend from claim 1, they are believed to be patentable over Whitefield and Bone for at least the same reasons. Accordingly, Applicant respectfully requests that the rejection of claims 1-12 under 35 U.S.C. 103(a) as being unpatentable over Whitefield in view of Bone be withdrawn.

IV. Conclusion

In view of the foregoing remarks and amendments, Applicant submits that the pending claims are in condition for allowance. Reconsideration is therefore respectfully requested. If there are any questions concerning this Response, the Examiner is asked to phone the undersigned attorney at (312) 321-4200.

Respectfully submitted,



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